

**What is claimed is:**

- 5        1. An isolated nucleic acid molecule comprising a nucleotide sequence that encodes a polypeptide comprising an amino acid sequence homologous to even numbered sequences selected from the group consisting of: SEQ ID NO:2 to SEQ ID NO:94, SEQ ID NO:186, and fragments thereof; said nucleic acid molecule encoding at least a portion of nGPCR-x.
- 10      2. The isolated nucleic acid molecule of claim 1 comprising a sequence that encodes a polypeptide comprising even numbered sequences selected from the group consisting of SEQ ID NO:2 to SEQ ID NO:94, SEQ ID NO:186, and fragments thereof.
- 15      3. The isolated nucleic acid molecule of claim 1 comprising a sequence homologous to odd numbered sequences selected from the group consisting of SEQ ID NO:1 to SEQ ID NO:93, SEQ ID NO:185 and fragments thereof.
- 20      4. The isolated nucleic acid molecule of claim 1 comprising a sequence selected from the group of odd numbered sequences consisting of SEQ ID NO:1 to SEQ ID NO: 93, SEQ ID NO:185 and fragments thereof.
- 25      5. The isolated nucleic acid molecule of claim 4 comprising a sequence selected from the group of odd numbered sequences consisting of SEQ ID NO:1 to SEQ ID NO:93 and SEQ ID NO:185.
- 30      6. The isolated nucleic acid molecule of claim 4 wherein said nucleotide sequence is selected from the group consisting of: SEQ ID NO:1, SEQ ID NO:73, SEQ ID NO:9, SEQ ID NO:77, SEQ ID NO:11, SEQ ID NO:79, SEQ ID NO:21, SEQ ID NO:81 SEQ ID NO:53, SEQ ID NO:83, SEQ ID NO:59, SEQ ID NO:85, SEQ ID NO:63, SEQ ID NO:87, SEQ ID NO:89, SEQ ID NO:67, SEQ ID NO:91, SEQ ID NO:93, SEQ ID NO:3, and SEQ ID NO:185.
- 35      7. The isolated nucleic acid molecule of claim 4 wherein said nucleotide sequence is selected from the group consisting of: SEQ ID NO:73, SEQ ID NO:77,

SEQ ID NO:79, SEQ ID NO:81 SEQ ID NO:83, SEQ ID NO:85, SEQ ID NO:89,  
SEQ ID NO:93 and SEQ ID NO:185.

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8. The isolated nucleic acid molecule of claim 1 wherein said nucleic acid  
molecule is DNA.

9. The isolated nucleic acid molecule of claim 1 wherein said nucleic acid  
molecule is RNA.

10 10. An expression vector comprising a nucleic acid molecule of any one of claims  
1 to 5.

11. The expression vector of claim 10 wherein said nucleic acid molecule  
comprises a sequence selected from the group of odd numbered sequences consisting  
15 of SEQ ID NO:1 to SEQ ID NO:93 and SEQ ID NO:185.

12. The expression vector of claim 10 wherein said nucleic acid molecule  
comprises a nucleotide sequence selected from the group consisting of: SEQ ID  
NO:1, SEQ ID NO:73, SEQ ID NO:9, SEQ ID NO:77, SEQ ID NO:11, SEQ ID  
20 NO:79, SEQ ID NO: 21, SEQ ID NO:81 SEQ ID NO:53, SEQ ID NO:83, SEQ ID  
NO:59, SEQ ID NO:85, SEQ ID NO:63, SEQ ID NO:87, SEQ ID NO:89, SEQ ID  
NO:67, SEQ ID NO:91, SEQ ID NO:93, SEQ ID NO: 3, and SEQ ID NO: 185.

25 13. The expression vector of claim 10 wherein said nucleotide sequence is  
selected from the group consisting of: SEQ ID NO: 73, SEQ ID NO:77, SEQ ID  
NO:79, SEQ ID NO:81 SEQ ID NO:83, SEQ ID NO:85, SEQ ID NO:89, SEQ ID  
NO:93 and SEQ ID NO: 185.

30 14. The expression vector of claim 10 wherein said vector is a plasmid.

15. The expression vector of claim 10 wherein said vector is a viral particle.

16. The expression vector of claim 15 wherein said vector is selected from the  
group consisting of adenoviruses, baculoviruses, parvoviruses, herpesviruses,

poxviruses, adeno-associated viruses, Semliki Forest viruses, vaccinia viruses, and retroviruses.

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*(b)*

17. The expression vector of claim 10 wherein said nucleic acid molecule is operably connected to a promoter selected from the group consisting of simian virus 40, mouse mammary tumor virus, long terminal repeat of human immunodeficiency virus, maloney virus, cytomegalovirus immediate early promoter, Epstein Barr virus, rous sarcoma virus, human actin, human myosin, human hemoglobin, human muscle creatine, and human metallothionein.

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18. A host cell transformed with an expression vector of claim 10.

19. The transformed host cell of claim 18 wherein said cell is a bacterial cell.

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20. The transformed host cell of claim 19 wherein said bacterial cell is E. coli.

21. The transformed host cell of claim 18 wherein said cell is yeast.

22. The transformed host cell of claim 21 wherein said yeast is S. cerevisiae.

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23. The transformed host cell of claim 18 wherein said cell is an insect cell.

24. The transformed host cell of claim 23 wherein said insect cell is S. frugiperda.

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25. The transformed host cell of claim 18 wherein said cell is a mammalian cell.

26. The transformed host cell of claim 25 wherein mammalian cell is selected from the group consisting of chinese hamster ovary cells, HeLa cells, African green monkey kidney cells, human 293 cells, and murine 3T3 fibroblasts.

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27. An isolated nucleic acid molecule comprising a nucleotide sequence complementary to at least a portion of a sequence selected from the group of odd numbered sequences consisting of SEQ ID NO:1 to SEQ ID NO:93 and SEQ ID NO:185, said portion comprising at least 10 nucleotides.

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28. The nucleic acid molecule of claim 27 wherein said molecule is an antisense oligonucleotide directed to a region of a sequence selected from the group of odd numbered sequences consisting of SEQ ID NO:1 to SEQ ID NO:93 and SEQ ID NO:185.

29. The nucleic acid molecule of claim 28 wherein said oligonucleotide is directed to a regulatory region of a sequence selected from the group of odd numbered sequences consisting of SEQ ID NO:1 to SEQ ID NO:93 and SEQ ID NO:185.

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30. The nucleic acid molecule of claim 27 wherein said molecule is an antisense oligonucleotide directed to a region of nucleotide sequence selected from the group consisting of: SEQ ID NO: 73, SEQ ID NO:77, SEQ ID NO:79, SEQ ID NO:81 SEQ ID NO:83, SEQ ID NO:85, SEQ ID NO:89, SEQ ID NO:93 and SEQ ID NO: 185.

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31. A composition comprising a nucleic acid molecule of any one of claims 1 to 5 or 27 and an acceptable carrier or diluent.

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32. A composition comprising a recombinant expression vector of claim 10 and an acceptable carrier or diluent.

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33. A method of producing a polypeptide that comprises a sequence selected from the group of even numbered sequences consisting SEQ ID NO: 2 to SEQ ID NO: 94 and SEQ ID NO: 186, and homologs and fragments thereof, said method comprising the steps of:

- a) introducing a recombinant expression vector of claim 10 into a compatible host cell;
- b) growing said host cell under conditions for expression of said polypeptide; and
- c) recovering said polypeptide.

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34. The method of claim 33 wherein said host cell is lysed and said polypeptide is recovered from the lysate of said host cell.

35. The method of claim 33 wherein said polypeptide is recovered by purifying the culture medium without lysing said host cell.

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5 36. An isolated polypeptide encoded by a nucleic acid molecule of claim 1.

37. The polypeptide of claim 36 wherein said polypeptide comprises a sequence selected from the group of even numbered sequences consisting SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186.

10 38. The polypeptide of claim 36 wherein said polypeptide comprises an amino acid sequence homologous to a sequence selected from the group of even numbered sequences consisting of SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186.

15 39. The polypeptide of claim 36 wherein said sequence homologous to a sequence selected from the group of even numbered sequences consisting of SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186 comprises at least one conservative amino acid substitution compared to the even numbered sequences in the group of even numbered sequences consisting of SEQ ID NO: 2 to SEQ ID NO: 94 and SEQ ID NO: 186.

20 40. The polypeptide of claim 36 wherein said polypeptide comprises a fragment of a polypeptide with a sequence selected from the group of even numbered sequences consisting of SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186.

25 41. The polypeptide of claim 36 wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 2, SEQ ID NO: 74; SEQ ID NO: 4, SEQ ID NO: 186; SEQ ID NO:10, SEQ ID NO:78; SEQ ID NO:12, SEQ ID NO:80; SEQ ID NO: 22, SEQ ID NO:82; SEQ ID NO:54, SEQ ID NO:84; SEQ ID NO:60, SEQ ID NO: 86; SEQ ID NO:64, SEQ ID NO: 88, SEQ ID NO:90; SEQ ID NO:68, SEQ ID NO: 92, and SEQ ID NO:94.

30 42. The polypeptide of claim 36 wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 74; SEQ ID NO: 186; SEQ ID NO:78; SEQ ID NO:80; SEQ ID NO:82; SEQ ID NO:84; SEQ ID NO: 86; SEQ ID NO:90; and SEQ ID NO:94.

43. A composition comprising a polypeptide of claim 36 and an acceptable carrier or diluent.

5 44. An isolated antibody which binds to an epitope on a polypeptide of claim 36.

45. The antibody of claim 44 wherein said antibody is a monoclonal antibody.

10 46. A composition comprising an antibody of claim 44 and an acceptable carrier or diluent.

15 47. A method of inducing an immune response in a mammal against a polypeptide of claim 36 comprising administering to said mammal an amount of said polypeptide sufficient to induce said immune response.

20 48. A method for identifying a compound which binds nGPCR-x comprising the steps of:

- a) contacting nGPCR-x with a compound; and
- b) determining whether said compound binds nGPCR-x.

25 49. The method of claim 48 wherein the nGPCR-x comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 2, SEQ ID NO: 74; SEQ ID NO: 4, SEQ ID NO: 186; SEQ ID NO: 10, SEQ ID NO: 78; SEQ ID NO: 12, SEQ ID NO: 80; SEQ ID NO: 22, SEQ ID NO: 82; SEQ ID NO: 54, SEQ ID NO: 84; SEQ ID NO: 60, SEQ ID NO: 86; SEQ ID NO: 64, SEQ ID NO: 88, SEQ ID NO: 90; SEQ ID NO: 68, SEQ ID NO: 92, and SEQ ID NO: 94.

30 50. The method of claim 48 wherein the nGPCR-x comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 74; SEQ ID NO: 186; SEQ ID NO: 78; SEQ ID NO: 80; SEQ ID NO: 82; SEQ ID NO: 84; SEQ ID NO: 86; SEQ ID NO: 90; and SEQ ID NO: 94.

51. The method of claim 48 wherein binding of said compound to nGPCR-x is determined by a protein binding assay.

52. The method of claim 48 wherein said protein binding assay is selected from the group consisting of a gel-shift assay, Western blot, radiolabeled competition assay, phage-based expression cloning, co-fractionation by chromatography, co-precipitation, cross linking, interaction trap/two-hybrid analysis, southwestern analysis, and ELISA.

53. A compound identified by the method of claim 48.

10 54. A method for identifying a compound which binds a nucleic acid molecule encoding nGPCR-x comprising the steps of:

- a) contacting said nucleic acid molecule encoding nGPCR-x with a compound; and
- b) determining whether said compound binds said nucleic acid molecule.

15 55. The method of claim 54 wherein binding is determined by a gel-shift assay.

20 56. A compound identified by the method of claim 54.

57. A method for identifying a compound which modulates the activity of nGPCR-x comprising the steps of:

- a) contacting nGPCR-x with a compound; and
- b) determining whether nGPCR-x activity has been modulated.

25 58. The method of claim 57 wherein the nGPCR-x comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 2, SEQ ID NO: 74; SEQ ID NO: 4, SEQ ID NO: 186; SEQ ID NO: 10, SEQ ID NO: 78; SEQ ID NO: 12, SEQ ID NO: 80; SEQ ID NO: 22, SEQ ID NO: 82; SEQ ID NO: 54, SEQ ID NO: 84; SEQ ID NO: 60, SEQ ID NO: 86; SEQ ID NO: 64, SEQ ID NO: 88, SEQ ID NO: 90; SEQ ID NO: 68, SEQ ID NO: 92, and SEQ ID NO: 94.

30 59. The method of claim 57 wherein the nGPCR-x comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 74; SEQ ID NO: 186;

SEQ ID NO:78; SEQ ID NO:80; SEQ ID NO:82; SEQ ID NO:84; SEQ ID NO: 86;  
SEQ ID NO:90; and SEQ ID NO:94.

60. The method of claim 57 wherein said activity is neuropeptide binding.

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61. The method of claim 57 wherein said activity is neuropeptide signaling.

62. A compound identified by the method of claim 57.

10 63. A method of identifying an animal homolog of nGPCR-x comprising the  
steps:

a) comparing the nucleic acid sequences of the animal with a  
sequence selected from the group of odd numbered sequence consisting of SEQ ID  
NO: 1 to SEQ ID NO: 93, SEQ ID NO: 185, and portions thereof, said portions being  
15 at least 10 nucleotides; and

b) identifying nucleic acid sequences of the animal that are  
homologous to said sequence selected from the group of odd numbered sequence  
consisting of SEQ ID NO: 1 to SEQ ID NO: 93, SEQ ID NO: 185, and portions  
thereof.

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64. The method of claim 63 wherein comparing the nucleic acid sequences of the  
animal with a sequence selected from the group of odd numbered sequence consisting  
of SEQ ID NO: 1 to SEQ ID NO: 93, SEQ ID NO: 185, and portions thereof, said  
portions being at least 10 nucleotides is performed by DNA hybridization.

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65. The method of claim 63 wherein comparing the nucleic acid sequences of the  
animal with a sequence selected from the group of odd numbered sequence consisting  
of SEQ ID NO: 1 to SEQ ID NO: 93, SEQ ID NO: 185, and portions thereof, said  
portions being at least 10 nucleotides is performed by computer homology search.

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66. A method of screening a human subject to diagnose a disorder affecting the  
brain or genetic predisposition therefor, comprising the steps of:

(a) assaying nucleic acid of a human subject to determine a presence or  
an absence of a mutation altering an amino acid sequence, expression, or biological

activity of at least one nGPCR that is expressed in the brain, wherein the nGPCR comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:74, SEQ ID NO:186, SEQ ID NO:78, SEQ ID NO:80, SEQ ID NO:82, SEQ ID NO:84, SEQ ID NO:86, SEQ ID NO:90, and SEQ ID NO:94, and allelic variants thereof, and wherein the nucleic acid corresponds to a gene encoding the nGPCR; and

(b) diagnosing the disorder or predisposition from the presence or absence of said mutation, wherein the presence of a mutation altering the amino acid sequence, expression, or biological activity of the nGPCR in the nucleic acid correlates with an increased risk of developing the disorder.

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67. A method according to claim 66, wherein the nGPCR is nGPCR-40 comprising an amino acid sequence set forth in SEQ ID NO:84 or an allelic variant thereof.

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68. A method according to claim 66, wherein the nGPCR is nGPCR-54 comprising an amino acid sequence set forth in SEQ ID NO:86 or an allelic variant thereof.

69. A method according to claim 66, wherein the disease is schizophrenia.

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70. A method according to claim 66, wherein the assaying step comprises at least one procedure selected from the group consisting of:

a) comparing nucleotide sequences from the human subject and reference sequences and determining a difference of either  
 at least a nucleotide of at least one codon  
 between the nucleotide sequences from the human subject that encodes an nGPCR-40 allele and an nGPCR-40 reference sequence, or

at least a nucleotide of at least one codon  
 between the nucleotide sequences from the human subject that encodes an nGPCR-54 allele and an nGPCR-54 reference sequence;

(b) performing a hybridization assay to determine whether nucleic acid from the human subject has a nucleotide sequence identical to or different from one or more reference sequences;

(c) performing a polynucleotide migration assay to determine whether nucleic acid from the human subject has a nucleotide sequence identical to or different from one or more reference sequences; and

5 (d) performing a restriction endonuclease digestion to determine whether nucleic acid from the human subject has a nucleotide sequence identical to or different from one or more reference sequences.

71. A method according to claim 70 wherein the assaying step comprises: performing a polymerase chain reaction assay to amplify nucleic acid comprising nGPCR-40 or nGPCR-54 coding sequence, and determining nucleotide sequence of the amplified nucleic acid.

10 72. A method of screening for an nGPCR-40 or nGPCR-54 hereditary schizophrenia genotype in a human patient, comprising the steps of:

15 (a) providing a biological sample comprising nucleic acid from said patient, said nucleic acid including sequences corresponding to alleles of nGPCR-40 or nGPCR-54; and

(b) detecting the presence of one or more mutations in the nGPCR-40 allele or the nGPCR-54 allele;

20 wherein the presence of a mutation in an nGPCR-40 allele or nGPCR-54 allele is indicative of a hereditary schizophrenia genotype.

25 73. The method according to claim 72 wherein said biological sample is a cell sample.

74. The method according to claim 72 wherein said detecting the presence of a mutation comprises sequencing at least a portion of said nucleic acid, said portion comprising at least one codon of said nGPCR-40 or nGPCR-54 alleles.

30 75. The method according to claim 72 wherein said nucleic acid is DNA.

76. The method according to claim 72 wherein said nucleic acid is RNA.

77. A kit for screening a human subject to diagnose schizophrenia or a genetic predisposition therefor, comprising, in association:

(a) an oligonucleotide useful as a probe for identifying polymorphisms in a human nGPCR-40 gene or a human nGPCR-54 gene, the oligonucleotide comprising 6-50 nucleotides in a sequence that is identical or complementary to a sequence of a wild type human nGPCR-40 or nGPCR-54 gene sequence or nGPCR-40 or nGPCR-54 coding sequence, except for one sequence difference selected from the group consisting of a nucleotide addition, a nucleotide deletion, or nucleotide substitution; and

10 (b) a media packaged with the oligonucleotide, said media containing information for identifying polymorphisms that correlate with schizophrenia or a genetic predisposition therefor, the polymorphisms being identifiable using the oligonucleotide as a probe.

15 78. A method of identifying a nGPCR allelic variant that correlates with a mental disorder, comprising steps of:

(a) providing a biological sample comprising nucleic acid from a human patient diagnosed with a mental disorder, or from the patient's genetic progenitors or progeny;

20 (b) detecting in the nucleic acid the presence of one or more mutations in an nGPCR that is expressed in the brain, wherein the nGPCR comprises an amino acid sequence selected from the group consisting of SEQ ID NO:74, SEQ ID NO:186, SEQ ID NO:78, SEQ ID NO:80, SEQ ID NO:82, SEQ ID NO:84, SEQ ID NO:86, SEQ ID NO:90, and SEQ ID NO:94, and allelic variants thereof, and  
25 wherein the nucleic acid includes sequence corresponding to the gene or genes encoding nGPCR;

wherein the one or more mutations detected indicates an allelic variant that correlates with a mental disorder.

30 79. A method according to claim 78, wherein the disorder is schizophrenia, and wherein the at least one nGPCR is nGPCR-40, nGPCR-54, or an allelic variant thereof.

80. A purified and isolated polynucleotide comprising a nucleotide sequence encoding an nGPCR-40 or nGPCR-54 allelic variant identified according to claim 79.

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81. A host cell transformed or transfected with a polynucleotide according to claim 80 or with a vector comprising the polynucleotide.

82. A purified polynucleotide comprising a nucleotide sequence encoding nGPCR-40 or nGPCR-54 of a human with schizophrenia;  
wherein said polynucleotide hybridizes to the complement of SEQ ID

10 NO:83 or of SEQ ID NO:85 under the following hybridization conditions:

(a) hybridization for 16 hours at 42 °C in a hybridization solution comprising 50% formamide, 1% SDS, 1 M NaCl, 10% dextran sulfate and

(b) washing 2 times for 30 minutes at 60 °C in a wash solution comprising 0.1x SSC and 1% SDS; and

15 wherein the polynucleotide that encodes nGPCR-40 or nGPCR-54 amino acid sequence of the human differs from SEQ ID NO:84 or SEQ ID NO:86 by at least one residue.

83. A vector comprising a polynucleotide according to claim 82.

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84. A host cell that has been transformed or transfected with a polynucleotide according to claim 82 and that expresses the nGPCR-40 or nGPCR-54 protein encoded by the polynucleotide.

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85. A host cell according to claim 84 that has been co-transfected with a polynucleotide encoding the nGPCR-40 or nGPCR-54 amino acid sequence set forth in SEQ ID NO:84 or SEQ ID NO:86 and that expresses the nGPCR-40 or nGPCR-54 protein having the amino acid sequence set forth in SEQ ID NO:84 or SEQ ID NO:86.

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86. A method for identifying a modulator of biological activity of nGPCR-40 or nGPCR-54 comprising the steps of:

a) contacting a cell according to claim 84 in the presence and in the absence of a putative modulator compound;

b) measuring nGPCR-40 or nGPCR-54 biological activity  
in the cell;

wherein decreased or increased nGPCR-40 or nGPCR-54 biological activity in  
the presence versus absence of the putative modulator is indicative of a modulator of  
biological activity.

87. A method to identify compounds useful for the treatment of schizophrenia,  
said method comprising steps of:

(a) contacting a composition comprising nGPCR-40 with a  
compound suspected of binding nGPCR-40 or contacting a composition comprising  
nGPCR-54 with a compound suspected of binding nGPCR-54;

(b) detecting binding between nGPCR-40 and the compound  
suspected of binding nGPCR-40 or between nGPCR-54 and the compound suspected  
of binding nGPCR-54;

wherein compounds identified as binding nGPCR-40 or nGPCR-54 are  
candidate compounds useful for the treatment of schizophrenia.

88. A method for identifying a compound useful as a modulator of binding  
between nGPCR-40 and a binding partner of nGPCR-40 or between nGPCR-54 and a  
binding partner of nGPCR-54 comprising the steps of:

(a) contacting the binding partner and a composition  
comprising nGPCR-40 or nGPCR-54 in the presence and in the absence of a putative  
modulator compound;

(b) detecting binding between the binding partner and  
nGPCR-40 or nGPCR-54;

wherein decreased or increased binding between the binding partner  
and nGPCR-40 or nGPCR-54 in the presence of the putative modulator, as compared  
to binding in the absence of the putative modulator is indicative a modulator  
compound useful for the treatment of schizophrenia.

89. A method according to claim 87 or 88 wherein the composition comprises a  
cell expressing nGPCR-40 or nGPCR-54 on its surface.

90. An method according to claim 89 wherein the composition comprises a cell transformed or transfected with a polynucleotide that encodes nGPCR-40 or nGPCR-54.

5 91. A method of purifying a G protein from a sample containing said G protein comprising the steps of:

a) contacting said sample with a polypeptide of claim 1 for a time sufficient to allow said G protein to form a complex with said polypeptide;

10 b) isolating said complex from remaining components of said sample;

c) maintaining said complex under conditions which result in dissociation of said G protein from said polypeptide; and

d) isolating said G protein from said polypeptide.

15 92. The method of claim 91 wherein said sample comprises an amino acid sequence selected from the group of even numbered sequences consisting of SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186.

20 93. The method of claim 91 wherein said polypeptide comprises an amino acid sequence homologous to a sequence selected from the group of even numbered sequences consisting of SEQ ID NO:2 to SEQ ID NO:94 and SEQ ID NO:186.

25 94. The method of claim 91 wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 2, SEQ ID NO: 74; SEQ ID NO: 4, SEQ ID NO: 186; SEQ ID NO:10, SEQ ID NO:78; SEQ ID NO:12, SEQ ID NO:80; SEQ ID NO: 22, SEQ ID NO:82; SEQ ID NO:54, SEQ ID NO:84; SEQ ID NO:60, SEQ ID NO: 86; SEQ ID NO:64, SEQ ID NO: 88, SEQ ID NO:90; SEQ ID NO:68, SEQ ID NO: 92, and SEQ ID NO:94.

30 95. The method of claim 91 wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: SEQ ID NO: 74; SEQ ID NO: 186; SEQ ID NO:78; SEQ ID NO:80; SEQ ID NO:82; SEQ ID NO:84; SEQ ID NO: 86; SEQ ID NO:90; and SEQ ID NO:94.

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96. An isolated nucleic acid molecule comprising a nucleotide sequence that encodes a polypeptide comprising an amino acid sequence homologous to SEQ ID NO:76, and fragments thereof; said nucleic acid molecule encoding at least a portion of nGPCR-5.

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97. An isolated polypeptide encoded by a nucleic acid molecule of claim 96.